

Maryland Historical Trust
Determination of Eligibility Form

Property Name: NIH Dental Research Building (Building 30) Inventory Number: M: 35-9-11
Address: 9000 Rockville Pike Historic District: Yes ☒ No
City: Bethesda Zip Code: 20854 County: Montgomery
USGS Quadrangle(s): Washington West
Property Owner: United States of America (National Institutes of Health) Tax Account ID Number:
Tax Map Parcel Number(s): Tax Map Number:
Project: Section 110 of the National Historic Preservation Act Agency: NIH
Agency Prepared By: NIH
Preparer's Name: Phillip Neuberg Date Prepared: 11/20/2012
Documentation Is Presented In: MIHP M: 35-9-0011
Preparer's Eligibility Recommendation: ☒ Eligibility Recommended ☐ Eligibility Not Recommended
Criteria: ☒ A ☒ B ☐ C ☐ D Considerations: ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G
Complete if the property is a contributing or non-contributing resource to a NR district/property:
Name of the District/Property:
Inventory Number: Eligible: ☐ Yes ☐ Listed: ☐ Yes
Site Visit by MHT Staff: ☐ Yes ☐ No Name: Date:

Description of Property and Justification: (Please attach map and photo)

The Dental Research Building (also known as Building number 30) located on the Bethesda campus National Institutes of Health has associations with both significant historical events and individuals as outlined below and as justified in the discussion that follows. The building, thus, appears to be eligible for listing in the National Register of Historic Places under Criteria A and B at the National Level of Significance.

The relevant National Register criteria (see: <http://www.nps.gov/nr/publications/bulletins/pdfs/nrb15.pdf>) read as follows:

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and

(a) that are associated with events that have made a significant contribution to the broad patterns of our history; or

(b) that are associated with the lives of persons significant in our past;

The Dental Research Building (Building No. 30) was conceived, designed, and constructed in response to the very nature of research that was undertaken by the intramural scientists of the Dental Research Institute, one of the three research branches that formed the original NIH. The building is the direct result of a decade-long effort led by the Institute leadership, including first

MARYLAND HISTORICAL TRUST REVIEW

Eligibility Recommended: ☒ Eligibility Not Recommended: ☐
Criteria: ☒ A ☒ B ☐ C ☐ D Considerations: ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

MHT Comments:

Jonathan Dwyer
Reviewer, Office of Preservation Services

B. Kuntz
Reviewer, National Register Program

1/22/13

Date

1/18/13

Date

NR-ELIGIBILITY REVIEW FORM

M: 35-9-11

NIH Dental Research Building (Building 30)

2

NIDR Director Dr. H. Trendley Dean, with the full and unwavering support of the profession's American Dental Association, to provide the Institute with its own research laboratories that would build upon the unquestionably successful Institute-funded scientific research that validated the role of fluoridation in prevention of tooth decay. Pioneering studies into pain and pain management conducted by Dr. Ronald Dubner took place in this building's research laboratories. Additionally Paul Keyes, Robert Fitzgerald, Abner Notkins, and Seymour Kreshover all maintained labs in this building.

Criterion A. – Historical Association

Building 30 stands as testimony to the twentieth century's understanding of the legitimate place of dental and cranial facial research in the spectrum of integrated, holistic health care.

Criterion B. – Lives of Significant Individuals

The roster of scientists who worked in the labs of Building 30 includes many luminaries of twentieth century dental bio-medical research and discovery. They include H. Trendley Dean, Francis Arnold, Seymour Kreshover, Albert Notkins, Ronald Dubner, Paul Keyes, and Robert Fitzgerald.

See MIHP form for additional information.

MARYLAND HISTORICAL TRUST REVIEW

Eligibility Recommended: ☐

Eligibility Not Recommended: ☐

Criteria: ☐ A ☐ B ☐ C ☐ D

Considerations: ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

MHT Comments:

Reviewer, Office of Preservation Services

Date

Reviewer, National Register Program

Date

NIH Historic Resources Inventory Form

MIHP Inventory No. M: 35-9-0011

1. Name

Historic Name Dental Research BuildingCommon Name and Building Number NIH Bldg no. 30

2. Location

Street and Number 9000 Rockville PikeCity, Town BethesdaCongressional District 8State MarylandCounty Montgomery

3. Classification

Category Ownership☐ District☒ Building(s)☐ Structure☐ Site☐ Object☐ Yes: Unrestricted☐ No**Status**☒ Public☐ Private☐ Both☐ Accessible☒ Yes: Restricted**Present use (Government)**☒ Occupied☐ Unoccupied☐ work in Progress☐ Laboratory☐ Animal Research☐ Hospital☐ Administrative☒ Support☐ Other

4. Owner of Property

Name United States of America (National Institutes of Health)Street & Number: 9000 Rockville PikeTelephone No.: 301-443-7154City, Town BethesdaState and Zip Code MD 20854

5. Location of Legal Description

Courthouse, Registry of Deeds, etc.: Montgomery County Courthouse

Liber # _____ Folio# _____

Street & Number _____

City, Town RockvilleState and Zip Code MD 20852

6. Representation in Existing

Historic Survey X Yes ___ No

2013 Comprehensive Master Plan

Title

11-2012

Date

X Federal ___ State ___ County ___ Local

National Institutes of Health

Depository for Survey Records

9000 Rockville Pike, Bethesda, MD 20854

City, Town

State

7. Description

MIHP Inventory No. M: 35-9-0011

Condition

☐ Excellent

☐ Deteriorated

☐ Unaltered

☒ Original Site

☒ Good

☐ Ruins

☒ Altered

☐ Moved

☐ Fair

☐ Unexposed

Discuss Description

SEE CONTINUATION SHEETS

8. Significance

MIHP Inventory No. M: 35-9-0011

Period	Areas of Significance			
<input type="checkbox"/> Prehistoric	<input type="checkbox"/> Archeology-Prehistoric	<input type="checkbox"/> Community Planning	<input type="checkbox"/> Landscape Architecture	<input type="checkbox"/> Religion
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> Archeology-Historic	<input type="checkbox"/> Conservation	<input type="checkbox"/> Law	<input checked="" type="checkbox"/> Science
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> Agriculture	<input type="checkbox"/> Economics	<input type="checkbox"/> Literature	<input type="checkbox"/> Social/Humanit.
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> Architecture	<input type="checkbox"/> Education	<input type="checkbox"/> Military	<input type="checkbox"/> Theater
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> Art	<input type="checkbox"/> Engineering	<input type="checkbox"/> Music	<input type="checkbox"/> Transportation
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> Commerce	<input type="checkbox"/> Exploration/Settlement	<input type="checkbox"/> Philosophy	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> 1900-1999	<input type="checkbox"/> Communications	<input type="checkbox"/> Industry	<input type="checkbox"/> Politics/Government	<input type="checkbox"/> Invention
<input type="checkbox"/> 2000-				

Specific Dates	Architect:	Builder	Area
7/1961	General Service Administration	Unknown	93,940 gsf 7/1961 110,240 gsf 10/2012

Source: NIH Office of Research Facilities. Dates and Appropriations Master File. Report dated 11/24/1998, on file in the Chief Engineer's Office, Office of Research Facilities.

Applicable Criteria:	<input checked="" type="checkbox"/> A	<input checked="" type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D			
Applicable Exception	<input type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D	<input type="checkbox"/> E	<input type="checkbox"/> F	<input type="checkbox"/> G
Level of Significance	<input checked="" type="checkbox"/> National		<input type="checkbox"/> State		<input type="checkbox"/> Local		

Discuss Significance

SEE CONTINUATION SHEETS

9. Major Bibliographical References

MIHP Inventory No. M: 35-9-0011

SEE CONTINUATION SHEETS

10. Geographical Data

Building 30 is located on the Bethesda Maryland Campus of the National Institutes of Health. For USGS coordinates please see the attached USGS map section.

11. Determination of Eligibility to be Included into the National Register

☒ Eligible

☐ Not Eligible

Discuss Findings

SEE CONTINUATION SHEETS

12. Form Prepared by

Name/Title Phillip W. Neuberg, AIA / NIH Federal Historic Preservation Officer

Organization National Institutes of Health
Office of Research Facilities

Date 20 November 2012

Street & Number Division of Facilities Planning
Building 13, Room 1325

Telephone 301-443-7154

City or Town Bethesda

State Maryland

Approved by the NIH Federal Preservation Officer

Concurrence of State Preservation Officer

7. Description

Building 30 was built in 1961 as the home of the National Institute of Dental Research (NIDR) which changed its name in 1997 to the National Institute of Dental and Craniofacial Research (NIDCR) to reflect the broadened scope of research and study that the Institute had assumed since its founding in 1948. Built on land that had until 1955 been the greens for the public Glenbrook Golf Course, formerly the Woodmont Country Club (http://www.nlm.nih.gov/exhibition/wewereherefirst/woodmont_country_club.html), its west façade remains today very much as it appeared when it first opened its doors in May of 1961. Extensive landscaping with a formal arrangement of trees and walkways developed over the intervening decades has complemented the setting immediately west of the building. Photos show that at some point prior to the landscaping, a surface parking lot occupied this area.

Today, an extensive surface parking lot lies to the east of the building known of as Lot 10H. To the south is an informal landscaped area and a series of concrete paved walkways connecting to nearby buildings 29 and 29A. To the north is a sizable lawn that is shared with the south side of the low NMR wings of old Building 10, a part of the Clinical Center Complex. Located immediately northwest of the structure is Building 49, a research laboratory tower built in 1992.

This building, like the concurrently constructed Building 29, is an exceptionally long rectangular block measuring 266'-6" long by 50'-0" wide and five stories tall (original drawings in NIH Plan Room), to which is attached a 30' x 40' rear (east) appendage of one story in height. Over and around this appendage which is original to the design, as evidenced by the plans on file in the NIH Office of Research Facilities Plan Room (Englehardt, sheet 3-1) have been a series of additions rising a full six stories above grade. The original rectangular building block is capped by a flat roof which is, in turn, concealed behind low parapet walls. Building 30 employs a structural concrete frame, which was to become a hallmark of NIH research laboratory building designs due to the greater stability of a concrete frame over a structural steel frame. The exterior walls are clad in a single wythe red face brick laid in a monotonous running bond pattern that is relieved only by limestone window sills and limestone capstones at the parapet line. But unlike its geographically and chronologically closest neighbor, Building 30 does not feature stair towers that are appended to the rectangular building mass. Rather the stairs at either end of the building have been tucked into the north and south building structural bays.

Above each of the three distinct roof sections is a penthouse. The formal front façade or West Elevation is five stories tall and 17 bays wide. Each bay consists of a single polished aluminum framed window opening with a single glazed double hung operable sash unit. The center bays project slightly from the main block to form a five bay pavilion that rises an additional story in height (six in total). The three central bays of this modest pavilion are further distinguished by unadorned limestone panels that stretch between window sills and lintels. Surrounding the limestone panels and the adjoining windows are projecting limestone jambs which run continuously from the sixth floor windows down below the second story windows rather than being interrupted at each floor. The pattern thus established is one of a pair of vertical brick ribbons or pilasters separated by three hyper-attenuated limestone panels that are each punctuated by the square apertures of the window openings. Horizontally, this pattern is interrupted only by the projecting, cantilevered flat roofed entrance canopy that spans the width of these three bays. The centermost of these first floor bays located below the canopy is characterized by a broad masonry opening which has been filled in by storefront construction of recent vintage and consists of a set of bi-parting, sliding doors, fixed side light panels surmounted by two equally sized fixed sash transoms. Bays on either side of the storefront entrance that are also located beneath the canopy contain no windows, but are clad in large, square limestone panels. The centermost limestone panel to the right of the door contains the cornerstone information: "United States of America" (next line) "Dwight D. Eisenhower" (next line) "President" (next line) "1961". An oversized, surface mounted, incised sign panel that displays the name of the National Institute of Dental and Craniofacial Research occupies a corresponding location to the left of the front doors.

The South Elevation consists of a chaste, unadorned running bond brick wall rising five full stories above grade. The only architectural relief afforded is provided by four identical aluminum framed double hung windows that are aligned

over a small cantilevered canopy that shelters a pair of egress doors. These hollow metal doors open onto a small concrete platform from which a poured concrete stair of 8 risers descends to the sidewalk. All elements of this elevation appear to be original to the 1961 construction date.

The North Elevation is similar to the South Elevation. It consists of a chaste, unadorned running bond brick wall rising five full stories above grade. The only architectural relief afforded is provided by four identical aluminum framed double hung windows that are aligned over a small cantilevered canopy that shelters a pair of egress doors. This aluminum framed pair of bi-parting doors feature full size sash panels and appear to be replacement units for the original doors. They open onto a small concrete platform from which a poured concrete stair of nine risers descends to the sidewalk. The stair balustrade of aluminum with a clear anodized finish appears to be original as do all other elements

Architectural drawings show that part of the original construction included a west facing extension of 30 by 40 feet. This extension is still visible despite subsequent additions to the rear. These subsequent additions provide for added laboratory and office space, a stair tower, and lounge. They extend the full height of the building. In 1991 below grade fresh air intake shafts were added to the north and east elevations by Mueller Consulting Engineers of Baltimore. Also at this time a major asbestos removal project was undertaken, removing the asbestos containing materials from pipe wraps in the multiple vertical utility shafts. In 2002, the vivarium was moved to the basement (IDB Architecture, Inc.). Construction of the present East Tower—based upon design provided by The Kling Lundquist Partnership—was completed in 1993 (NIH Office of Research Facilities). The final form of the building on the west side was achieved with the addition of 2nd and 3rd floors above the original east conference room completed in 2002, based upon design provided by IDB Architecture, Inc., of Fairfax, Virginia; as well as the addition of conference room and lounge space on the 4th and 5th floors, based upon design provided by the Goetz Group Architects, completed in 2005 (Air Photographics, Inc.).

See attached photographs and photograph list.

SUMMARY STATEMENT OF SIGNIFICANCE

Constructed in 1961 for the National Institute of Dental Research (NIDR), Building 30 is nationally significant to the history of medicine and public health under Criterion A because within its research laboratories government scientists conducted seminal investigations that have propelled the practice of dentistry and oral health into the mainstream of biomedical research. NIH funded research into the effects of fluoridation of the public water supply, consistently noted as one of the most important public health achievements of the 20th century, preceded the construction of Building 30. However, the ongoing research and confirming studies in prevention of dental caries were conducted by NIDR scientists in the Building 30 laboratories. Pioneering NIDR scientists like H. Trendley Dean, Francis A. Arnold, Seymour Kreshover, Ron Dubner, and Abner Notkins led laboratories that clarified the causes and nature of dental caries, physical and sensory pain, herpes simplex virus type 1, oral cancer, and periodontal diseases. Because of Building 30's direct association with the important findings of these individuals, this building also qualifies for listing in the National Register also under Criterion B.

Established by Congress in 1948 through the National Dental Research Act [public law 755], the National Institute of Dental Research was the third such research institute founded as part of the NIH. This Act also called for the establishment of National Advisory Dental Research Council. With the founding of the Institute in 1948, Congress authorized \$2 million for a laboratory building (Kuska) but securing the appropriation would take another decade. Dr. Dean, NIDR Director and Dr. Dyer, NIH Director assumed construction funds would be forthcoming in 1949, but they soon learned, "the Bureau of the Budget omitted the construction funds from the proposed budget because planners thought that the dental research activities could be housed either in the future NIH Clinical Center or in a space vacated by other institutes [when they move into the Clinical Center]" (Harris, p. 142). Instead, with the support of the ADA; five senators; the surgeon general; and the assistant surgeon general and chief dental officer, Dr. Bruce Forsyth, Congress "allowed" \$100,000 for building plans for a building not to exceed \$2 million in cost, which legislation President Truman then signed on June 19, 1949. Following completion of the design and site selection in 1950, the Bureau of the Budget again withheld funding despite Dr. Dean's entreaties to key supporters like John Fogarty. Indeed, a budget deficit following the onset of the Korean War in 1950 led to the suspension of most capital funds in 1951. Finally, the Public Health Service, recognizing the lack of political support for a dental building project in 1951 announced their support for "postponing the building, 'until the need for such construction becomes apparent]" (Harris p. 142)."

In 1951 the NIDR staff size of 75 forced Director Dean to deploy employees in labs as far away as Staten Island, at the Stapleton Public Health Service hospital; in Rochester, at the Eastman Dental Dispensary, as well as at various Washington D.C. metropolitan area facilities. The understanding with NIH leadership was that personnel would return to the Bethesda Campus when the Clinical Center was constructed and opened (July, 1953). By that time, however, there was insufficient space in the new Clinical Center because NIDR staff had increased by more than a third of its 1951 census with over 100 in 1955 (Harris, p. 143). Francis Arnold, DDS succeeded Dean in 1953 as Institute Director but it was not until 1956 that the issue of a new building was again to gain momentum. The new momentum was supplied by the ongoing drum beats of the ADA; Senators James Murray (Dem. Montana) and Lister Hill (Dem. Alabama); Congressman John Fogarty (Dem. Rhode Island); and Congressman Percy Priest (Dem. Tennessee), Chairman of the House Interstate and Foreign Commerce Committee. Murray and Priest introduced legislation for \$5 million to cover increased costs for the new facility. But with the new administration of President Dwight David Eisenhower came the belief that a building was not necessary since the work of the NIDR could be better accomplished through its extramural support of existing or burgeoning dental research at established research universities rather than through its intramural program development. A spokesperson in the newly formed Department of Health, Education, and Welfare (HEW) said: "If we get an institute building in Bethesda . . . [it] might actually serve to draw research manpower away from the dental schools (attributed to Dr. Lowell T Coggershall quoted in Harris p. 144)."

Interestingly, Surgeon General Scheele and NIH Director James Shannon supported the HEW's view rather than that of the Institute. The relentless and stalwart support of the ADA continued to press Congress for a new building. Congress in turn struck a bargain with the administration and the new Secretary of HEW, Marion B. Folsom, in which

the building appropriation would be lowered to \$4 million and would expand extramural research by providing \$3.7 million in direct grants and a whopping \$90 million for extramural capital projects [public law 635]. Based upon Folsom's advice to now fund the \$4 million for a NIDR facility, the President then signed S. 3246 [public law 732] into law on July 16, 1956 which in fact authorized considerable NIH construction activities including the full construction funding for a new Biologics Laboratory (Building 30), a new Administrative Office Building (Building 31), the Surgical Theater addition to Bldg 10, and several additions to the buildings 14 and 28 animal care complex. Because the existing plans for the NIDR building were now obsolete, Congress approved \$200,000 in a supplemental appropriation for a redesign of the facility, to be located on a new site south of the Clinical Center on the former Glenbrook Golf Club greenways (Harris p. 145; National Institutes of Health, 1956, p. 1). Finally, on December 31, 1956, the Bureau of the Budget released the building funds and by March of 1958, Mr. C. W. May, Chief of the NIH Division of Research Services reported that, "a contract with an architectural firm for the design of this building is being negotiated with Public Building Services." Interestingly—probably because of the fact that NIDR had to scrap the earlier plans for a unique design—May went on to explain, "It is expected that the design will be patterned on that drawn up for the Biologics Standards Building, thus effecting significant savings. (Internal NIH memorandum from C.W. May dated 3/15/1957)"

Nonetheless, during 1957, in the same way that construction had been previously thwarted, the combined anti-inflationary efforts of the administration's Bureau of the Budget put a hold on all funded capital projects. Later that year the Cold War, in the form of the Soviet Union's launch of the Sputnik satellite, placed national security concerns ahead of capital construction of federal facilities. Still undeterred, in 1958 ADA President Dr. William R. Alstadt enlisted the aid and advice of his Arkansas home state Senators, J William Fulbright and John McClellan. With the support of Hill and Fogarty, Alstadt maneuvered the ADA staff and membership to lobby their representatives. Securing the necessary House votes by Easter of 1958 and the required Senate support in June of same year, Eisenhower signed the \$ 3.7 million legislation that became Public Law 85-850 (Harris, p. 147).

Finally, on September 21, 1960, after a year of construction begun in 1959, Dr. John K. Knutson, chief dental officer of the PHS participated with NIDR Director Arnold in the laying of a cornerstone for the new building located at the southwest corner of the campus. Present also were the first NIDR Director H. Trendley Dean as well as HEW Secretary Abraham Ribicoff. Speaking at the event was Emory Morris, president of the W. K. Kellogg Foundation, which had funded the original Grand Rapids caries research project. Nancy Harris has noted that the building opened 31 years to the day after the law establishing the NIH took effect (Harris, p. 147). The dedication ceremony on May 26, 1961 featured Secretary Ribicoff as well as Senators Hill and Fogarty who had provided so much needed support over the past decade for the building's construction.

The building was modern in every sense for its time, featuring air conditioning throughout its five floor and two basement levels. Its 42,000 square feet of research laboratory space had been designed to accommodate 190 (RECORD, 3/30/1959). But by the time it opened in 1961 there were 258 staff members. Subsequent additions to the building were made in 1993, 2002, and 2005.

Building 30 provided research laboratory spaces for some of the most influential and pioneering oral and dental research scientists. Among the more noted NIDR principal investigators are the following:

H. Trendley Dean and Francis A. Arnold

H. Trendley Dean and his colleague Francis Arnold deserve wide recognition for identifying the preventive nature of fluoride on tooth caries (cavities) – a scientific breakthrough that transformed tooth decay into a preventable condition for first time in history and one that led to an effective and widely celebrated public health intervention.

H. Trendley Dean received his DDS in 1916 and joined the PHS in 1921. In 1931, he was assigned to the National Institute of Health as its first dental officer. There, he established a dental hygiene unit that is often regarded as a

forerunner to the NIDR. When the NIDR opened in 1948, Dean became its first director—a post he held until his retirement in 1953.

Arnold received his B.S. and D.D.S. degrees from Western Reserve University in 1932 and 1934, respectively. After serving his internship at the U.S. Marine Hospital in Cleveland, Ohio, he was commissioned in the PHS in 1936. He joined the staff of the Dental Research Section, NIH, in 1937, and served as assistant chief of the section alongside Dean from 1943-48. Upon the establishment of the NIDR in 1948, he became its associate director until 1953, when he became its director. He held this position until 1965, when Arnold was named chief dental officer and assistant surgeon general of the PHS. In 1967, shortly before his death, he retired from the PHS and joined the faculty of the School of Dentistry, University of the Pacific.

One of Dean's first assignments upon beginning his position at the NIH was to show that mottling—a browning of the teeth that seemed to occur in specific regions of the country—was the result of excessive fluoride in drinking water. These investigations also allowed Dean, along with Arnold, to observe that individuals with mottled teeth were also less likely to have dental caries. He noted how increases in fluoride in drinking water led to proportional increases in mottling and to decreases in dental caries. This observation led Dean to explore the possibility of whether physically and cosmetically safe levels of fluoride in drinking water prevented tooth decay.

In order to investigate his hypothesis regarding fluoride and the prevention of dental caries, Dean first had to establish a reliable method for measuring small amounts of fluoride in drinking water. At Dean's request, Dr. Elias Elvove, a senior NIH chemist, developed a technique for measuring fluoride in water with an accuracy of 0.1 ppm – a development that enabled Dean to carefully monitor fluoride levels in his later epidemiological studies. Upon establishing such measurement methods, conducting other chemical and pathological studies of fluoride, and ruling out negative health effects of fluoride, Dean, together with Arnold organized the first controlled community water fluoridation trial which enrolled almost 30,000 school children in Grand Rapids and Muskegon, Michigan. Their research showed that children exposed to fluoride in drinking water had up to 60% fewer caries than those who were not.

As a result of this breakthrough study, fluoridation became an official policy of the U.S. Public Health Service by 1951, and by 1960 water fluoridation had become widely used in the U.S., reaching about 50 million people. By 2006, 69.2% of the U.S. population on public water systems were receiving fluoridated water, amounting to 61.5% of the total U.S. population; 3.0% of the population on public water systems were receiving naturally occurring fluoride (Centers for Disease Control).

Dean has been recognized for his contributions through many honors and awards for his research on fluorosis, including the Gorgas Medal, the Goodell Prize, the Jarvis Medal, the Distinguished Service Medal of the American Association of Public Health Dentists, the Laskar Award, and several honorary memberships to American and foreign scientific societies.

In addition to his leadership role at the NIH, Dean served as Secretary of the Council on Dental Research of the American Dental Association from 1953-1959; as president of the International Association for Dental Research from 1944-1945; as President of the Association of Military Dental Surgeons; and Vice President of the Federation Dentaire Internationale.

Arnold also received a number of awards, including the William John Gies Award in 1963 and the H. Trendley Dean Award in 1964.

Seymour Kreshover

Dr. Seymour Kreshover served the NIDR as its scientific director (1956-1966) and its director (1966 to 1975). Born in New York, Dr. Kreshover graduated from New York University. He received a dental degree from the University of

Pennsylvania in 1938 and a doctoral degree in 1942 in clinical medicine and pathology from Yale University, where he was a Calhoun Scholar and Carnegie Fellow. He earned a medical degree in 1949 from New York University. Prior to arriving at the NIH, Kreshover served as Professor of Oral Pathology, Director of Dental Research, and Director of Graduate and Postgraduate Studies at the Medical College of Virginia.

As an investigator, Kreshover explored the relationship between chemical carcinogenesis and nutritional status on malignant diseases of the mouth and skin in laboratory animals. However, Kreshover is probably best recognized as a pivotal NIDR director and administrator, bringing dental concerns into the mainstream of university-based basic biomedical research. For example, many considered Kreshover's work as director responsible for improving the neuroscience laboratories and supporting new procedures that led to groundbreaking work in the fields of pain research, cleft palate reconstruction, tooth decay prevention and craniofacial research.

Of Kreshover's many awards and honorary degrees is the Public Health Service's Distinguished Service Medal, which he received in 1971. The NIH established an annual symposium in 1983 named in his honor.

Abner Notkins

Notkins came to Building 30 in 1961, where he studied the herpes simplex virus and other persistent viruses for many decades. Once HIV was determined to be the cause of AIDS, Notkins' lab developed an important tool for studying the virus. Applying techniques he developed over the course of his work, Notkins created transgenic mice models of AIDS. These mice expressed certain viral genes (or combinations of genes). As a result, some developed characteristic lesions in the kidneys and skin. Others developed a wasting syndrome typically seen in AIDS patients. After noting that these mice only developed the wasting syndrome 3-4 days after birth, Notkins determined that human choriogonadotropin (a maternal hormone) protected them from viral proteins *in utero*. Notkins also induced T-cells (the cells that are infected by HIV) to express antibodies against the virus. In these cells, the antibody slowed viral growth and provided some degree of protection against HIV. The transgenic mice proved to be a valuable tool for studying the genetics of HIV, and the antibody experiment pointed to the possibility of using gene therapy to treat AIDS patients. Notkins played a significant role in the broader AIDS initiative at NIH. (Harden, Victoria, and Ruth Harris)

Robert Fitzgerald and Paul Keyes

Fitzgerald joined NIDR in 1948 and Keyes followed suit in 1955. Together, they fundamentally reinterpreted the causes of dental caries (i.e., cavities) and in the process changed the way that people all over the world received dental care. Prior to the 1940s, dentists believed that caries were caused by acid in the mouth, which was formed when bacteria consumed sugars and subsequently eroded enamel on the teeth. Dentists also thought that certain individuals were hereditarily predisposed to dental caries because their teeth were naturally more sensitive to mouth-borne acid. Using hamsters, Keyes showed (in 1959 and 1960) that sensitivity to caries was not a heritable trait: putatively resistant hamster lines suddenly developed caries when they were placed in the same cages as putatively non-resistant hamsters. Going further, Keyes determined that penicillin prevented the development of caries in rats (even those fed sugar), and that fecal matter was the vector that transmitted a susceptibility to caries from one animal to another. Separately, Fitzgerald discovered, in 1956, that caries could be induced in rats that lacked them when the rats were inoculated with streptococcus bacteria. Significantly, this type of bacteria did not produce acid, so Fitzgerald's experiment cast doubt on the hypothesis that caries were caused by acid-producing bacteria. In subsequent collaborative work, Keyes and Fitzgerald demonstrated that specific streptococcus bacteria caused caries in hamsters and rats by inoculating and subsequently recovering bacterial samples from the animals' caries. This work was published in seminal papers in 1960 and 1963. Fitzgerald and Keyes' work stimulated further investigations into the bacterial causes of tooth decay. And, perhaps more importantly, it profoundly changed dental practice. Whereas dentists previously simply repaired decay, after Keyes and Fitzgerald's work they took care to ensure that the area was sterilized, and they instructed their patients to do a better job of removing dental plaque. Without a doubt, Keyes and Fitzgerald's work was extraordinarily important in the history of dentistry.

Ronald Dubner

A protégé of Kreshover, Dubner came to Building 30 in 1964, where he ran a neuroscience laboratory in the basement that studied the sensation of pain. NIDR's interest in pain was stimulated by dentists' widespread use of general anesthesia – a dangerous practice. At the time, scientists believed that the sensation of pain involved a simple process, whereby nerve cells received stimuli and transmitted a signal to the brain. Working with electrical engineer Fred Brown, Dubner's research was groundbreaking because it showed that pain stimuli were modulated by the brain, and were heavily influenced by environmental and cognitive inputs. Conducted during the 1970s and 1980s, Dubner's critical experiments in the field involved monkeys, who were trained to press a lever under predetermined conditions (e.g., when they sensed that a thermode attached to their lips grew hotter). At the same time, Dubner monitored neuronal activity in a key part of the monkeys' brains. These experiments led to a number of unexpected discoveries: for example, multiple types of neurons were involved in identification of painful stimuli, the same types of neurons were capable of detecting painful and painless stimuli, and a specific part of the brain was responsible for determining whether or not stimuli were behaviorally relevant. Dubner's laboratory soon grew into the country's foremost center for the study of pain, attracting multidisciplinary teams of researchers who developed the theory of "plasticity," i.e., the notion that the sensation of pain involved changes in neural connections, in response to past experiences, emotional states, and environmental cues. Research conducted under Dubner's leadership in Building 30 also led to the discovery of natural pain-enhancing and pain-relieving neurotransmitters, and it provided key tools for the assessment of experimental analgesics. This work soon expanded beyond the area of dental pain, stimulating new understandings of chronic and neuropathic pain and leading to genetic, neuroanatomical and hormonal discoveries. In all, Dubner's research fundamentally altered the way we understand and relieve pain.

Directors of the National Institute of Dental and Craniofacial Research, 1948 to 2012

(Known as National Institute of Dental Research prior to 1997)

H. Trendley Dean, D.D.S.	1948-1953
Francis A. Arnold, Jr. D.D.S.	1953-1966
Seymour Kreshover, D.D.S., M.D., Ph.D.	1966-1975
David B. Scott, D.D.S.	1976-1981
John F. Goggins, D.D.S. (Acting)	1982
Harald Löe, D.D.S. Dr. Odont.	1983-1994
Harold C. Slavkin, D.D.S.,	1995-2000
Lawrence Tabak, D.D.S., Ph.D.	2000-2010
Martha J. Somerman, D.D.S., Ph.D.	2011- present

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The Dental Research Building (also known as Building number 30) located on the Bethesda campus National Institutes of Health has associations with both significant historical events and individuals as outlined below and as justified in the discussion that follows. The building, thus, appears to be eligible for listing in the National Register of Historic Places under Criteria A and B at the National Level of Significance.

The relevant National Register criteria (see: <http://www.nps.gov/nr/publications/bulletins/pdfs/nrb15.pdf>) read as follows:

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and

(a) *that are associated with events that have made a significant contribution to the broad patterns of our history; or*

(b) *that are associated with the lives of persons significant in our past;*

The Dental Research Building (Building No. 30) was conceived, designed, and constructed in response to the very nature of research that was undertaken by the intramural scientists of the Dental Research Institute, one of the three research branches that formed the original NIH. The building is the direct result of a decade-long effort led by the Institute leadership, including first NIDR Director Dr. H. Trendley Dean, with the full and unwavering support of the profession's American Dental Association, to provide the Institute with its own research laboratories that would build upon the unquestionably successful Institute-funded scientific research that validated the role of fluoridation in prevention of tooth decay. Pioneering studies into pain and pain management conducted by Dr. Ronald Dubner took place in this building's research laboratories. Additionally Paul Keyes, Robert Fitzgerald, Abner Notkins, and Seymour Kreshover all maintained labs in this building.

Criterion A. – Historical Association

Building 30 stands as testimony to the twentieth century's understanding of the legitimate place of dental and cranial facial research in the spectrum of integrated, holistic health care.

Criterion B. – Lives of Significant Individuals

The roster of scientists who worked in the labs of Building 30 includes many luminaries of twentieth century dental bio-medical research and discovery. They include H. Trendley Dean, Francis Arnold, Seymour Kreshover, Albert Notkins, Ronald Dubner, Paul Keyes, and Robert Fitzgerald.

INTEGRITY:

The National Register defines seven aspects of integrity that have been considered in analyzing whether the Dental Research Building (Bldg 30) conveys its historical significance or qualities that, in various combinations, define integrity. The retention of specific aspects of integrity is paramount for a property to convey its significance. Building 30 has the potential to meet all aspects of integrity, as discussed below:

Location	Location is the place where the historic property was constructed or the place where the historic event occurred <i>The Dental Research Building is in its original location. The subsequent construction of nearby buildings 49 and 29A in no way detract from the authenticity of its setting, although a landscaped front lawn replaces an unattractive parking lot that replaced the original open west lawn.</i>
Design	Design is the combination of elements that create the form, plan, space, structure, and style of a property. <i>The architect's original exterior design and as well as the original rectilinear form of the building remains clearly evident, despite three subsequent additions to the rear (east side).</i>
Setting	Setting is the physical environment of a historic property <i>The original setting has changed over 50 years as plantings such as trees and shrubs have matured, but have not negatively obscured or compromised the original design intent.</i>

- Materials** Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property
Primary character defining original exterior materials, red brick running bond walls, aluminum framed double hung window sash, limestone accent panels, belt coursing and capstones all remain intact.
- Workmanship** Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory
The exterior workmanship today remains very similar to that shown in the photos taken shortly after the structure's completion.
- Feeling** Feeling is a property's expression of the aesthetic or historic sense of a particular period of time.
The utilitarian, economical feeling of the building's design is still evident in the unchanged repetitive fenestration pattern, relieved only by the limestone accentuated center bays and projecting penthouse. Most of the primary elements of the building envelope (walls and windows) appear to be original.
- Association** Association is the direct link between an important historic event or person and a historic property.
To this day, more than 50 years after its opening, the building remains the primary center of intramural laboratory research for the National Dental Research Institute which was renamed in 1998 as the National Institute of Dental and Craniofacial Research (NIDCR).

For the last 50 years, NIH has taken efforts to maintain the building's integrity and honor its significance in American history. The identity of the property is well preserved, appearing today much as it did upon opening, and its architectural integrity is fully intact. The building's ongoing status as the primary center of intramural dental and craniofacial research honors past strong associations with significant events and persons. Accordingly, the Dental Research Building is determined to be eligible for inclusion on the National Register.

MIHP Inventory No. M: 35-9-0011
 Dental Research Building
 Bethesda, MD
 Montgomery County
 Washington West Quadrangle, DC-MD-VA 2011



U.S. DEPARTMENT OF THE INTERIOR
 U. S. GEOLOGICAL SURVEY



Produced by the United States Geological Survey
 North American Datum of 1983 (NAD83)
 World Geodetic System of 1984 (WGS84). Projection and
 1 000-meter grid: Universal Transverse Mercator, Zone 18S
 10 000-foot ticks: Maryland Coordinate System of 1983,
 Virginia Coordinate System of 1983 (north zone)

Imagery.....NAIP, June 2009
 Roads.....©2006-2010 Tele Atlas
 Names.....GNIS, 2010
 Hydrography.....National Hydrography Dataset, 2009
 Contours.....National Elevation Dataset, 2008
 Boundaries.....Census, IBWC, IBC, USGS, 1972 - 2010

★
 MN
 10° 47'
 192 MILS
 GN
 1° 18'
 23 MILS

UTM GRID AND 2011 MAGNETIC NORTH
 DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
UJ
Grid Zone Designation
18S



M: 35-9-0011

DENTAL RESEARCH BUILDING

MONTGOMERY COUNTY, MD

PHOTOGRAPHER UNKNOWN

3/2006

DIGITAL FILE AT MD SHPO

DESCRIPTION:

AERIAL VIEW FROM EAST (BUILDING 30 IS AT CENTER OF PHOTO,
ABOVE PARKING LOT)

59795

1/24





M: 35-9-0011

DENTAL RESEARCH BUILDING

MONTGOMERY COUNTY, MD

PHOTOGRAPHER: PHILLIP W. NEUBERG

7/5/2012

DIGITAL FILE AT MD SHPO

DESCRIPTION:

OBLIQUE VIEW OF SOUTHWEST CORNER.

3/24

017 N N 2 --- 0600 AC+04 95+08 5A050 JN2 2101.3 / 100.0
36705



4/24

DESCRIPTION:

WEST ELEVATION.



NATIONAL INSTITUTE ON
THEORETICAL AND COMPUTATIONAL
SCIENCES

OFFICE OF THE DIRECTOR

M: 35-9-0011

DENTAL RESEARCH BUILDING
MONTGOMERY COUNTY, MD

PHOTOGRAPHER: DAVID A. DERENICK

10/16/2012 - DIGITAL FILE AT MD SHPO

DESCRIPTION:

MAIN (WEST) ENTRY

5/24

012 N N N-2 — 0600 AC+04 AS+08 SA050 JNS Z101.3 / 100.0



UNITED STATES OF AMERICA

EMBASSY IN MOSCOW

1959

M: 35-9-0011

6/24

DENTAL RESEARCH BUILDING

MONTGOMERY COUNTY, MD

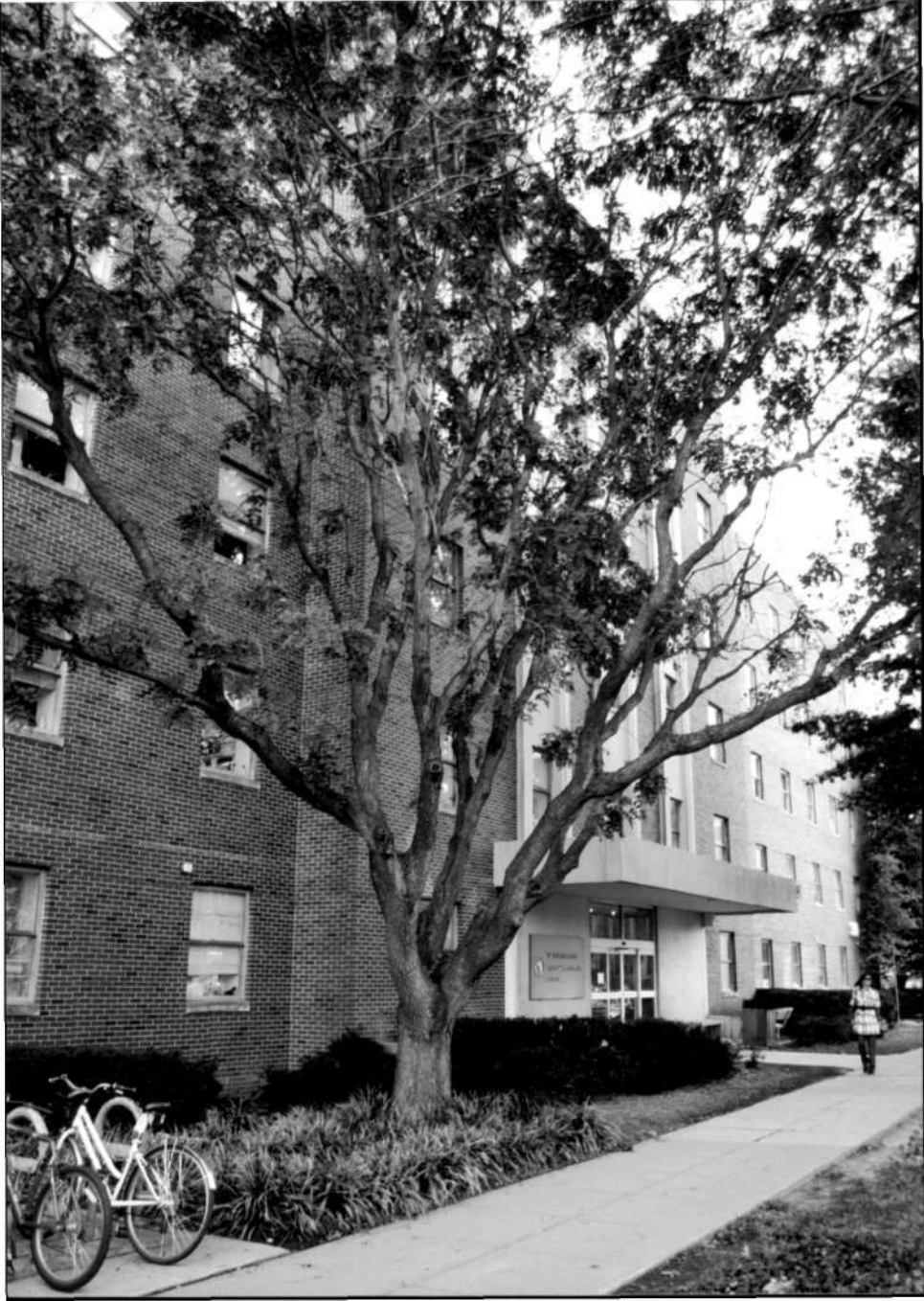
PHOTOGRAPHER: DAVID A. DERENICK

10/16/2012 DIGITAL FILE AT MD SHPO

DESCRIPTION:

LIMESTONE BAY AND ENTRY DETAILS

012 N N N-2-0600 RC+04 RS+08 S4050 JNS 2101.37 100.0
36205



M: 35-9-0011

7/24

DENTAL RESEARCH BUILDING

MONTGOMERY COUNTY, MD

PHOTOGRAPHER: DAVID A. DERENICK

10/16/2012 DIGITAL FILE AT MD SHPO

DESCRIPTION:

LOOKING SOUTHEAST TOWARD MAIN (WEST) ENTRY



8/24



9/24

10





M: 35-9-0011

DENTAL RESEARCH BUILDING

PHOTOGRAPHER: DAVID A. DERENICK

DESCRIPTION:

BUILDING 49 IS ON RIGHT.





M: 35-9-0011

13/24

DENTAL RESEARCH BUILDING

MONTGOMERY COUNTY, MD.

PHOTOGRAPHER: DAVID A. DERENICK

10/23/2012 DIGITAL FILE AT MD SHPD

DESCRIPTION:

FOURTH FLOOR TERRACE, SEEN
FROM ABOVE

0-001 / S-TB12 INC 050MS 00+00 40+00 0000 — T-N N N 210
36705





15/24

10/16/2012 DIGITAL FILE AT MD SHPO

EAST ELEVATION AS SEEN ACROSS PARKING LOT. BUILDING 49 IS THE TALLER STRUCTURE WITH THE HORIZONTAL BANDING, SEEN BEYOND.

LOT. BUILDING 49 IS THE TALLER STRUCTURE

WITH THE HORIZONTAL BANDING, SEEN BEYOND.



M: 35-9-0011

DENTAL RESEARCH BUILDING

MONTGOMERY COUNTY, MD

PHOTOGRAPHER: DAVID A. DERENICK

10/16/2012 DIGITAL FILE AT MD SMO

DESCRIPTION:

OBLIQUE VIEW OF SOUTHEAST CORNER.

16/24



M: 35-9-0011

17/24

DENTAL RESEARCH BUILDING

MONTGOMERY COUNTY, MD

PHOTOGRAPHER: DAVID A. DERENICK

10/17/2012 DIGITAL FILE AT MD SHPO

DESCRIPTION:

SOUTH ELEVATION OF EAST TOWER ADDITION

36705 00292 1-N N N 210 1-1-0600 AC+04 AS+08 S0050 JNS 210T. 3/100.0



18/24



M: 35-9-0011

19/24

DENTAL RESEARCH BUILDING
MONTGOMERY COUNTY, MD
PHOTOGRAPHER: DAVID A. DERENICK

10/16/2012 DIGITAL FILE AT MD SHPO

DESCRIPTION:

AIR INTAKE ON EAST SIDE, TO THE NORTH OF THE
EAST TOWER, AS SEEN FROM THE FIRST FLOOR
TERRACE.

36705 012 N N N-2 — 0600 PC+04 RS+08 SH050 JNS 2101.3 100.0



M: 35-9-0011

DENTAL RESEARCH BUILDING

MONTGOMERY COUNTY, MD

PHOTOGRAPHER: DAVID A. DERENICK

10/16/2012 DIGITAL FILE AT MD SHPO

DESCRIPTION:

AIR INTAKE AT NORTH END OF ORIGINAL
BUILDING.

20/24

36705 012 N N N-2 — 0600 AC+04 HS+08 SA050 JMS Z101.3 / 100.0



21/24

MONTGOMERY COUNTY, MD

10/16/2012 DIGITAL FILE AT MD SHPO

DETAIL OF STAIRWAY HANDRAIL AT
NORTH END OF ORIGINAL BUILDING.



22/24

MONTGOMERY COUNTY, MD

10/16/2012 DIGITAL FILE AT MD SHPO

DETAIL OF BRICK AND WINDOW
OPENING WITH SILL, ON WEST
ELEVATION.

36785
017 N N N N N



M: 35-9-0011

23/24

DENTAL RESEARCH BUILDING

MONTGOMERY COUNTY, MD

PHOTOGRAPHER: DAVID A. DERENICK

10/23/2012 DIGITAL FILE AT MD SHPO

DESCRIPTION:

VIEW INSIDE LOBBY LOOKING EAST.

0000 AC+04 AS+08 SA050 JMS 2019.07.100.0

36705
N N 210
N N 0292



